

## 6.0 Opportunities/Recommendations

The purpose of this chapter is to provide recommendations to either better understand needs through the acquisition of more data to fill data gaps or restoration recommendations to improve historic or current conditions on the landscape which would adjust trends to put them in a recovery mode.

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### 6.1 Vegetation

The “Caribou Nation Forest and Surrounding Area Sub-Regional Properly Functioning Condition Assessment” and other similar broad scale assessments have indicated that existing vegetation distribution, structure, and composition are outside the historic range of variability across much of the Soda Springs Ranger District. Therefore, the vegetation within the Upper Blackfoot Watershed Analysis area is likely also outside historic ranges, which has the potential to adversely affect ecosystem function.

#### Key Questions-

##### Non-Forested Vegetation

- 1) How has the structure of non-forested cover types changed? (Indicator - structure class reported by cover type)

Rangelands, primarily sagebrush communities, appear to have a structure very similar to the desired/ reference condition. Available data indicates that approximately 57% of the sagebrush types have between 11 and 20% canopy cover.

- 2) How has the disturbance regimes of non-forested cover types changed? (Indicator - disturbance regimes reported by cover type)

The current fire disturbance is 50+ years the historic disturbance regimes was 25 to 76 years. Natural fire has been replaced with total suppression of wildfire. If the current disturbance regime trend continues, it will likely lead to a future imbalance in non-forest vegetation structure.

- 3) How has the presence of noxious weeds affected native vegetation?

Small isolated populations of noxious weeds can be found within the watershed. Currently noxious weed populations are not out competing and replace native species. Noxious weed presence and abundance is not increasing, current treatment strategies are control existing populations.

## Forest Vegetation

- 1) How has the structure of the forested cover types changed? (Indicator - structure class reported by cover type)

Natural stand development and succession and the lack of any major stand-initiating disturbance since the beginning of the last century has created a landscape with a high percentage of mature/old structure. Currently all cover types are outside the desired range of structure classes. This lack of balance in structure across the landscape is the driver behind all forest types having a condition class rating of moderate.

- 2) How has the density of the forested cover types changed? (Indicator - density reported by cover type)

Densities have increased for all forest cover-types. Succession and stand development has continued without the natural fire disturbances that would have 'thinned' the stands kept the overall densities at a much lower level. This increase in density especially at such a large-scale could lead to an uncharacteristic large fire when it does occur.

- 3) How has the species composition of the forested cover types changed? (Indicator - species composition reported by cover type)

Species composition has changed in many of the covertypes due to succession to more shade tolerant species. Subalpine fir has developed in historically fire maintained Douglas-fir and mountain brush sites. Aspen has or is succeeding to conifer species on many acres. Lodgepole pine is succeeding to subalpine fir. Douglas fir is slowly gaining acres into sagebrush and mountain brush sites and losing acres to subalpine fir.

- 4) How has the disturbance regimes of the forested cover types changed? (Indicator - disturbance regimes reported by cover type)

Insect and disease disturbance continues to fluctuate with drought cycles but as the age of the forested vegetation increases susceptibility to more widespread will increase, especially with the high percentage of mature forest.

The fire regime for all covertypes has been altered such that the relatively frequent, low-to mixed intensity fire opportunity has been lost. Although lethal fire events are natural for all of these covertypes, the loss of the intervening low intensity fires has resulted in an unnatural build-up of live and dead fuels. The result is a higher probability of an uncharacteristic large fire event.

## **Opportunities/Recommendations**

- The “Condition Class Restoration Context Chart” output with the condition class runs suggests that restoration efforts need to focus on restoring fire effects, vegetation composition, structure and fuels. In other words treatments should be designed to address all the components of the system not just one, such as fuels or structure.
- Once a project area is picked a site-specific assessment should be made for every stand/site to determine the historical/reference type (e.g. was the site once aspen dominated). Stands or sites should be prioritized base on condition, giving priority to those that have the potential to lose an ecological component.
- Look for opportunities to move structure and species composition of forested cover types towards seral conditions with a combination of mechanical and prescribed fire treatments where mechanical treatment is operationally, economically and socially feasible. Where mechanical treatment is not operationally, economically or socially feasible assess options to use prescribed fire or other none traditional type treatments. In all cases the treatments should be designed to mimic the historical fire regime for the type.
- Develop a burning rotation plan for sagebrush/grass and mountain brush types to maintain the current balance of structure and species composition.
- For all treatments the risk to noxious weeds should be assessed and mitigated if possible.

## **Data gaps and additional information needs**

- ❑ Much of the vegetation information used in this analysis is appropriate for use at the watershed scale and for development of an overall watershed existing condition, but should not be used for project planning without close review and on site visits.
- ❑ More fire history data is needed for some types.
- ❑ A potential natural vegetation classification system needs to be developed for the area so that a better analysis of departure from natural condition can be made. This system should use the existing fire history data plus new data collected for this purpose. A classification system like this would help to account for the acres that have already moved to a new type through succession.

## 6.2 Hydrologic Processes & Water Quality

### Opportunities/Recommendations

- **Blackfoot River and Diamond Creek Channelized Reach(es).** *Opportunity:* A reach of the Blackfoot River (near county road crossing) appears to have been channelized. Other reaches above the reservoir may also be channelized such as the state section downstream of FS lands on Diamond Creek. The reaches are on private land. *Rationale:* Channelization generally increases channel gradient and flow velocity. Frequently this can have a destabilizing effect on the stability and sediment of reaches above and below as the stream tends to even out its gradient over a larger reach. If flow velocity is increased sufficiently, it can create a barrier to upstream movement of some aquatic species. In general, channelized streams tend to be poor habitat for most aquatic species. This reach is part of the important connective link between Blackfoot Reservoir and the smaller mountain streams on the Forest and so could impact aquatic species that rely on connectivity between the lake and the Forest. *Recommendation:* Work cooperatively with landowners and private landowner-oriented agencies such as NRCS and ISDA to identify channelized sections of streams on private lands, then work cooperatively to restore the affected reaches.
- **Diamond Creek Crossing near Campbell Creek.** *Opportunity:* The Diamond Creek crossing on Campbell Creek Rd (FR103) has very steep approaches due to channel being sharply incised about six feet deep. There are no cross-drains on FR103 as it heads straight downhill (in a slight trench) from Diamond Cr Rd. Crossing and un-drained road are on private land. *Rationale and Considerations:* The road and approaches are eroding and sediment delivery to the channel. Steep grades, abundant fine-grained material and slick nature make crossing at this point when wet dangerous or impossible. Adjacent potential crossing sites not incised may have wide willow/wetland areas that could complicate relocation. *Recommendation:* Work cooperatively with outside parties to grade and surface the existing crossing, which may require geotextile underlay and/or block mats to stabilize crossing. Improving drainage on road may require slight relocation.
- **Diamond Creek – Dispersed Camping next to streams.** *Opportunity:* Of the large number of dispersed camping areas, there are many that are backed up right against stream channels. The greatest numbers of such sites are in Diamond Creek, with new ATV trails being blazed each year on adjoining hillsides and forming loops near the camps. Upper Slug Creek, Diamond Flat and Johnson Creek also have numerous riparian camping sites that are frequently used. *Rationale:* The concentrated trampling that occurs from repeated camping use creates areas of bare, compacted and/or churned soils with no protective buffer to prevent sediment from these areas entering streams. ATV trails near and with primitive stream crossings increases sediment. Reports of waste lines from trailers and RVs leading to areas at or near the channel are received from time to time. *Recommendation:* Create hardened parking spots away from the streams but still in desirable shaded locations. Block streamside areas of the most popular

sites using barrier rock. Request more law enforcement presence over the long term to better assure watershed values are protected.

- **Diamond Creek Enclosure Buck & Pole Fence. *Opportunity:*** There is a buck & pole fence along Diamond Creek upstream of the Forest boundary at T7S R45E sec31 that is in disrepair. ***Rationale:*** The fence has been beneficial to protecting marshy areas and sensitive “E” channel type from livestock loitering. Sedges have grown back along the channel edges, channel functionality has improved greatly. Fence was constructed by the wildlife program. ***Recommendation:*** Find funding and continued sponsorship to repair portions of fence that have rotten or broken and provide for long-term maintenance of fence.
- **Diamond Creek & Incised reach. *Opportunity:*** The reach of Diamond Creek north of the Diamond Creek campground is moderately incised. In 1999, whole trees were laid on the surrounding terrace to restrict livestock from most of the channel. ***Rationale:*** Before trees were laid down, entry by livestock at many points along channel had broken down banks, prevented adequate regrowth of desirable riparian vegetation and increased sediment delivery to the stream. ***Recommendation:*** Evaluate previous stream surveys and restoration and develop a strategy. This may include measures to bolster the existing trees, provide watering spots, stabilize banks or other means to further stabilize stream after field re-visit occurs.
- **Bear Canyon Incised and Altered Stream Channel: *Opportunity:*** Previous evaluations of stream conditions have identified an incised. Previous recommendations were to re-establish a historic channel to connect to Diamond Creek on the lower portion or restore in-place. Restoration in-place was chosen whereby rock grade control structures were installed. A followup visit in 2007 indicated additional work could be done to continue restoration of stream channel function. ***Recommendation:*** Re-evaluate previous restoration and establish plans to further restore stream channel function, improve stream bank stability, and riparian conditions.
- **Diamond Creek Mainstem Partial Stream Capture. *Opportunity:*** A bypassed and closed section of Diamond Creek Road (to an old Diamond Creek crossing) still forms a depression and partly captures Diamond Creek during bankfull flow.



Livestock trail along obliterated route, which keeps vegetation down. Location is about 500 yards south of FR224 (Coyote Creek Road) in NE1/4 SWQQ, Sec 8, T8S R45E. Captured flow is flowing toward the camera in the picture. Diamond

Creek is just beyond the right edge of picture. **Rationale:** Flows higher than bankfull could initiate gullying or braiding of the main channel, destabilizing the channel and affecting habitat and sediment. **Recommendation:** Add additional fill to slightly raise bank and floodplain area where the water is now being captured. In addition, emplacement of some aspen or other local trees with limbs on ground to temporarily reinforce bank/floodplain and discourage livestock trailing and prevent water eroding new material and re-channeling. Transplanting of willows, aspen or other woody riparian vegetation to the area would provide for longer term protection and discouragement to livestock trailing.

- **Diamond Creek Road – Near Creek. Opportunity:** Portion of Diamond Creek Road, mostly on Montpelier District, closely parallels upper Diamond Creek. The slope to east (uphill) of road appears to be suitable for relocating that section of road. **Rationale:** Roads near creeks can contribute sediment to streams. Sediment problems from roads so located are nearly impossible to mitigate due to lack of available vegetation buffer. **Recommendation:** Move about 2 miles of Diamond Creek Road up the slope to the east.

**The following three opportunities are within 500 feet of each other along the Diamond Creek Road at the south end of T8S, R4EE, sec33:**

- **Diamond Creek Sediment from Swale. Opportunity:** A short portion of Diamond Creek Road (about 200 feet) Sec is in a drainage swale with fine soils. Though short, this piece of road is actively rutting and routing sediment to Diamond creek though a ditch from road leads to creek about 200 feet away. **Rationale:** Roads placed in low spots produce sediment-rich runoff and can increase sediment to perennial reaches at high levels even if the stretch of road is only hundreds of feet long. Sediment problems from roads so located are nearly impossible to mitigate without moving out of the drainage bottom. **Recommendation:** Moving 0.1-0.2 mile of the road up the slope east of the existing alignment. The slope to the east is not rocky or overly steep.
- **Diamond Creek Gullying of Spring Runoff. Opportunity:** Overland flow from spring runoff is being captured by a two-track from the road across a moderate



sideslope to a dispersed campsite along the creek. Site is just uphill from sediment-swale problem outlined above. Diamond Creek is 2/3 way up picture and flows to the right.

**Recommendation:** As there are two short roads to the dispersed site,

close the upper one and reconstruct the lower one with improved drainage

(waterbars, outsloping, dips) so that it in turn does not capture and channel overland flow.

- **Diamond Creek – Bygone culvert fill. *Opportunity:*** A culvert that crossed Diamond Creek was removed some time ago, but much of the fill remains, leaving a notch through which the creek flows. At bankfull flow, water is accelerated through the constriction and eroding a bank just downstream. ***Recommendation:*** Remove the remaining culvert fill and revegetate.
- **Flat Valley Road at Lanes Creek. *Opportunity:*** The Flat Valley Road (FR107) forms a raised turnpike crossing of Lanes Creek and constricts the 500 feet wide willow-wetland complex into a single culvert, altering water flow and affecting the stream. Most of the crossing is on private land. ***Rationale:*** Concentration of high flows into single culvert risks clogging by debris, beaver and overtopping. ***Recommendation:*** Work cooperatively with outside parties to add more small culverts on floodplain under turnpike to dissipate energies of high flows and assure wetlands below do not dry out on side away from culvert. If site investigation indicates beaver could return, work toward adding measures to mitigate beaver, such as perforated culverts above existing culvert (angled upward upstream), cages around culvert openings, or other proven means.
- **Loss of Streamside Willows. *Opportunity:*** Some streams, including Angus, Diamond, Lanes, Slug Creek had willows (and/or other riparian woody plants) reduced and/or eliminated, particularly in the reaches that flow through broad valleys. ***Rationale:*** Willow and other true riparian plants are critical to maintaining bank stability and shading to the stream, removing them can cause channels to downcut, widen or braid into multiple channels, raise water temperatures, damage gravel bars critical to trout feeding and spawning, and eliminate undercut banks, deep pools, and cover to hide from pelicans. Restoration of these vegetation types along streams would benefit fish, water quality and aquatic habitat both locally and in downstream areas. ***Recommendation:*** Work cooperatively with landowners and landowner-oriented agencies such as NRCS and ISDA to re-establish proper riparian vegetation along stream channels.
- **Motorized Trails near Streams. *Opportunity:*** A number of motorized trails on Forest lands are on the floodplain, low terraces which are near to streams. One example is Trail 122, which closely parallels NF Coyote Creek for about one mile. In places the trail is incised up to 3 feet. ***Rationale:*** Trails within 300 feet can contribute substantial sediment to streams directly or through feeder tributaries, even those that are dry most of the year. Where trails are incised, most or all of that volume of sediment went into the stream. ***Recommendation:*** Move trails away from stream channels, improve drainage and reduce sediment delivery.
- **Bygone Culvert fills at Closed Stream Crossing. *Opportunity:*** Some culverts were removed when old logging roads were closed, but some culvert fills were not fully removed. Example is Closure at end of FR645 in headwaters of Diamond Creek. ***Rationale:*** Culvert fills left in place increase velocities and can continue to scour and destabilize banks immediately below, be barriers to some aquatic species or cause other negative effects to the stream. ***Recommendation:*** Investigate old, closed stream crossings and remove relict culvert fills.



- **South Stewart Creek Riparian Fence and Culvert.** *Opportunity:* The short post and pole fence around the reach of South Stewart Creek upstream of the Diamond Creek Road (FR102) is in disrepair. *Rationale and considerations:* The stream is moderately downcut and has fine grained banks that are easily eroded by livestock trampling. However, should the stream recover and aggrade back to its original elevation, the culvert at Diamond Creek Road may need to be raised. *Recommendation:* Assess stream conditions and develop a stream restoration which may include modification of the existing culvert. Identify proper sponsorship to construct more durable and effective buck-and-pole fence to exclude livestock and provide water for livestock with less impact to the stream.
- **Trail Creek Culvert at County Road.** *Opportunity:* The culvert that carries the westernmost fork of Trail Creek across Mill Fork Rd (FR124) has frequently been blocked by beaver in the past, flooding the road. This portion of the road is about 300 feet north (outside) of the Forest boundary, and is maintained by Caribou County. *Rationale:* Plugging and overtopping of roads can cause vehicle accidents, reduce access and deliver large amounts of sediment to the stream. *Recommendation:* Replace existing small culvert with larger bottomless arch culvert. Secondary option could be to re-grade road so low spot is away from fill, create spillway by adding rock on toe slope of fill along low spots to prevent gullyng and minimize erosion of road prism. If sponsor can be found to assure proper maintenance, add beaver cage to prevent plugging of culvert.
- **Wooley Valley Dam.** *Opportunity:* The small dam on upper Angus Creek (T7S, R43E Sec. 11 SW) near the old Wooley Valley mine. *Rationale:* The dam holds back sediments that are understood to be high in Selenium. Though the dam was lowered recently to prevent damage from potential failure, the sediments remain. *Recommendation:* Remove dam and selenium-rich sediments.
- **Selenium Reductions:** Continue resource support and critical input to mine remediation plans to reduce selenium concentrations within the Upper Blackfoot Watershed. Special emphasis should be place on E. Mill Creek and the Maybe Canyon Mines which have the highest contribution of selenium in the Upper Blackfoot Watershed.

## Data Gaps

### Water Quality

- On some tributary creeks, concentrations of contaminants such as selenium have been measured, but daily flow data is not available to accurately calculate daily contaminant loads. An example is (East) Mill Creek below the cross-valley fill from the North Maybe Canyon Mine, the perennial stream with the highest recorded selenium concentrations.



## **Groundwater**

- ❑ Numerous wells have been drilled in the Blackfoot basin, however, most are for domestic use and only penetrate the uppermost productive aquifer, which is a gravel layer about 60 to 100 feet below the surface in the wider valleys. No area-wide groundwater model for the basin has been developed.

## **Sediment Sources and Travel**

- ❑ No measurements of sediment delivery from motorized routes, mines or other areas disturbed by management have been done for the watershed.

## **System Morphology, Processes and Dynamics**

- ❑ Pfankuch channel stability assessments have been completed for less than half of the streams on Forest. PFC assessments have been done for a majority, but not all USFS streams. Reference reaches of streams have not been identified in the watershed. Reference reaches could be difficult to establish, due to the ubiquity of historic intensive grazing in the watershed. However, reference reaches or reference characteristics will be essential when restoring straightened stream sections.
- ❑ Multiple Indicator Monitoring (MIM) should be established on sensitive stream type to better assess long-term trends on various allotments. Monitoring locations should be chosen interdisciplinary team to include fisheries biologists, hydrologists, and range conservationists taking into consideration previously monitored locations and existing grazing conditions.

## 6.3 Soil Resources

### Opportunities/Recommendations

#### Key Question #1

- There is a need for an assessment and plan for restoration of relic grazing disturbances, such as historic sheep driveways and bedding areas, particularly (1)Diamond Flat, and (2)Crows Nest (in Lanes Creek).
- Identify and, if needed, plan restoration for areas in Diamond Creek affected by grazing and heavy dispersed recreation.
- Map *Wyethia amplexicaulis* (Mule-ears) and *Centromadia pungens* (tarweed) monocultures on the Forest.

#### Key Question#2

- Determine a standard for critical heavy metal concentrations in upland surface sediments used in mine reclamation. This may include an initial literature search and potentially a full risk-assessment.

#### Key Question #3

- Identify potential hand-treatment fuel reduction projects on heavily loaded unstable slopes in the WUI.
- Restore historic disturbance regimes to avoid uncharacteristically large wildfires.
- Improve vegetation condition on areas susceptible to high erosion and mass instability.

#### Key Question#4

- Fully implement the Caribou Travel Plan FEIS ROD. Implement road closures as identified in this ROD, and identify opportunities for road obliteration within those identified for closure.

### Inventory Recommendations/Future Data Needs

- Create landslide inventory for the Caribou zone.
- Reconstruct and/or strategically relocate aging erosion tank infrastructure (3 tanks within watershed). These erosion tanks have been and continue to be a major component of the Forest's long-term soil monitoring plan. Tanks should be relocated considering access, potential for vandalism, and ability to capture representative effects from a particular management activity.

## **6.4 Fisheries and Aquatic Habitat**

### **Opportunities/Recommendations**

The following are management action recommendations pertaining to aquatic and riparian habitat and biota, listed by priority.

Through this analysis, many actions have been identified that would directly or indirectly benefit aquatic resources in the Blackfoot Watershed. While some of these recommendations are to collect more data, others are for restoration actions. I have made an initial attempt at listing these actions per priority. However, this attempt is fish-centric and filtered through my personal world views. When considered from an interdisciplinary perspective, different priorities may be established.

### **Additional Data Needs**

1. Perform IDFG diversion inventory on all diversions in the Blackfoot River system upstream of Blackfoot Reservoir to determine which kill fish and at what degree. Prioritize screening and bypass projects and implement them. Check to see if the Lanes Creek diversion near Browns Canyon has been screened. If not, consider screening it.
2. Perform a Northern leatherside distribution survey in the Blackfoot River to determine their distribution and population abundance and density.
3. Determine if there is a physical feature that segregates the native fish from non-native brook trout in upper Spring Creek. If there is, there may be an opportunity to significantly decrease the number of brook trout in Spring Creek through piscicide application.
4. Explore the need for Johnson Creek Road from where it encroaches upon the stream upstream. Consider obliterating the road beyond this point.
5. Monitor sheep grazing on Timothy Creek with the establishment of a minimum indicator monitoring transect and change management if there are still problems with overgrazing and bank trampling.
6. Surveys for brook trout should be conducted in Diamond, Slug, Spring, and Timothy Creeks. Where they dominate the salmonid population, consider eradication in coordination with IDFG.
7. Perform fish distribution surveys on Coyote and Bear creeks.

8. Initiate discussions with the Shoshone-Bannock Tribes regarding potentially providing passage at Blackfoot Dam. The decision to provide passage would be dependent upon migration barriers between the dam and the confluence of the Blackfoot and Snake rivers.
9. Perform a physical habitat survey on Timber Creek and focus upon the frequency of large instream wood. Determine if more wood could benefit the stream.
10. Extreme selenium concentrations exist in fish tissue collected in the past from East Mill Creek. The state has posted a warning for the consumption of fish from there, but it is not disclosed in the fishing regulations. Coordinate with Idaho Department of Fish and Game and suggest they include this consumptive restriction in their fishing regulation booklet.

## Restoration Actions

1. Yellowstone cutthroat trout conservation strategies within the entire Blackfoot River drainage should focus on controlling nonnative trout expansion. Initiate efforts in Trail, Johnson, and Olsen creeks.
2. The cormorant and pelican population problem in the Blackfoot Reservoir needs to be addressed. Return predators to gull island. Continue to haze avian predators along the river within the drawdown zone of the reservoir. Decrease excess avian predators through hunting, egg treatments, hazing, relocation, or other methods.
3. Replace the culvert at the FS Road 589 crossing of Slug Creek with a bottomless structure that has sufficient capacity.
4. Investigate the connection of East Mill Creek to the Blackfoot River. If the disconnect is anthropogenic, consider a reconnect project in cooperation with the private land owner. The selenium source in upper East Mill Creek will need to be addressed. This is an apparent reason for the extirpation of Yellowstone cutthroat trout in the stream on the Forest and is a contributor of selenium to downstream habitat.
5. Survey Angus Creek watershed for opportunities to decrease selenium sources and implement.
6. Lanes Creek, upstream of Browns Canyon can be improved by protecting stream banks (T5S R45E NW of NW of S31, 12T 04811284754659 and T5S R45E SE of NW of S31, 12T 04813434754318 and T6S R46E NW S5). Investigate opportunities to include fencing and off-channel water. In areas where appropriate, active mechanical stream bank manipulation should be considered. Once the stream banks are protected from grazing impacts, consideration should be given to planting willows and sedges. FS Road 139 encroaches upon Lanes

Creek affecting sediment loads and riparian vegetation. Opportunities to relocate segments of this road should be investigated.

7. Work to regenerate willow in the segments of the upper Blackfoot River and Lanes, Diamond, and Trail creeks where the effects of past willow eradication efforts are still evident. When opportunities present themselves, perform outreach with private landowners to address potential willow spraying that may still occur in lower Dry Valley.
8. Improve drainage on Flat Valley Road near Brown Canyon Creek. There are dispersed campsites encroaching on Brown Canyon Creek in the middle reach. The acceptable limits to motorized vehicles need to be defined at these sites. Determine if unstable stream banks described in 1984 still need stabilization and, if so, stabilize.
9. Complete the implementation of the 2006 BMP review recommendations for Diamond Creek. Where possible, restore meander to segments of Diamond Creek that have been channelized in the past.
10. Develop a recreation plan for Diamond Creek that addresses the dispersed camping along the stream. Acceptable limits of motorized access into the riparian area should be defined and delineated with large rocks.
11. Review livestock grazing in Johnson Creek and determine need for management changes, including the placement of a cattle guard to exclude cattle from this sheep allotment.
12. Install a minimum indicator monitoring transect on Kendall Canyon to monitor sheep grazing, particularly midway up the stream from the Forest boundary, where the road begins to leave the stream. Use the data to develop objectives to address noted grazing impacts.
13. Segments of FS Road 297 can be moved away from Trail Creek to decrease sedimentation. There is a potential funding will be available to do this through the Aspen Range Timber Sale. Inspect FS Road 124 crossing of Trail Creek to determine if the culvert is properly sized. The culvert regularly gets plugged by beaver activity.
14. Although the undersized, perched culvert at Stewart Creek was fixed, there is still some need for stabilizing the stream upstream and downstream of the crossing that had been impacted by the past culvert.
15. Perform a BMP review in the allotment along Goodheart Creek to review livestock grazing and determine management effectiveness and need for changes. Consider further extending the exclosure up Goodheart Creek to incorporate most of its length. Monitor to determine if conditions improve for fisheries.

16. Review campground in Mill Creek drainage to determine if there is a need to move the campsites away from the stream. Survey upper Mill Creek for phosphate mining-related impacts that need to be addressed and take action.
17. Investigate selenium sources in Dry Valley, Mabey, and Goodheart creeks and remediate. Inform NRCS of the potential for continued willow spraying on private land and suggest an outreach effort to private landowners in this area, informing them of the impacts of willow spraying.
18. Work cooperatively with private landowners to improve their cattle grazing programs to protect riparian areas. This could include offsite water sources and fencing to exclude cattle from the stream and surrounding riparian areas.
19. Determine fuel loading in Corraillsen Creek riparian area and, if needed, decrease loading to decrease potential for hotter than normal fire. Stabilize stream banks in Corraillsen Creek.
20. Determine if the 2000-2003 magnesium chloride treatment of the Blackfoot River Road through the Narrows is still in good condition. If not, consider another application of magnesium chloride in this area. Also consider paving this road segment.

## **6.5 Wildlife Habitat**

### **Answers to Issues and Key Questions**

The wildlife habitat has been impacted by past and present human activities or natural processes.

#### **Key Questions / Issues and Answers / Recommendations**

1. How and to what extent have human caused changes to habitat affected TES, MIS and other key wildlife species?
  - a. Motorized access density can be met by closing motorized routes as outlined in the Caribou Travel Plan Revision (2005).
  - b. Domestic livestock grazing impacting wildlife habitat will be provided by meeting CNF RFP S&G.
  - c. Riparian habitat would increase for birds if roads constructed in riparian areas are moved into upland habitats.
  - d. Older vegetation cover types substantially increased through effective fire suppression and regulated logging practices can be reduced within CNF RFP recommended seral stage percentages through the use of logging, prescribed burning, and Wildland Fire Use tactics.
  - e. Recreation trampling of riparian vegetation in very small site-specific areas can be reduced through limiting camp site encroachment.

- f. No Threatened, Endangered, Sensitive, or Management Indicator Species are known to be adversely affected by human caused impacts when activities are implemented within CNF RFP S&Gs.
  - i. Following these S&G will help meet the CNF RFP Wildlife DFC #2 “Forest management contributes to the recovery of federally listed threatened, endangered, and proposed species and provides for conditions, which help preclude sensitive species from being proposed for federal listing.” In addition, other wildlife of interest will also benefit.
- 2. How and to what extent have natural changes in habitat affected wildlife species?
  - a. Succession to late seral vegetation on most forested acres and some rangeland types favors late succession associated species like owls, woodpeckers, and goshawks. Early succession associated species, edge dwelling species, and opportunistic species have lost habitat. The lack of low-intensity thinning fires and stand replacing fires has changed the structural dynamics of forested and rangeland habitat. Fire caused mortality in forested vegetation has not occurred in the last 100 or more years, reducing this cyclic source of both standing snag and down woody habitat. However, insect mortality has occurred in older-aged forest, causing mortality (snags) and accumulated large down woody debris.
    - i. The mature/old Douglas-fir, Aspen, and mixed conifer forested habitat is at or near 100 percent and treatment would improve long term maintenance of age classed. Mature/old lodgepole pine is 58 percent and treatment to increase age class diversity is not recommended at this time.
  - b. Aspen forests provide for the most diverse array of wildlife of all of the forested vegetation types. The diversity and quantity of forage (forbs, grasses, aspen shoots, bark, leaves, and buds) greatly exceeds conifer forests. As aspen forests succeed to conifer the forage production drops, affecting big game, birds, and small mammals, many of which are prey carnivores, raptors, and goshawks. Additionally, aspen are prone to various stem decay fungus that provide cavity nesting habitat as live or dead trees. Conifer are not as prone to heart rot as live trees, live longer, and as dead trees are often “hard snags” which fall over before providing cavity nest opportunities. Loss of as much as 45% of the aspen acres existing in the early 1900’s represents a significant loss of potential diversity in the watershed.
    - i. Mule Deer habitat would improve by increasing aspen stands by reducing competition of conifer. Meeting the Mule Deer Initiative meet the CNF RFP Wildlife DFC #1 : “The Forest provides habitat that contributes to state wildlife management plans.”
    - ii. The mature/old Aspen age class is 99 percent. Aspen is at risk from a lack of age class diversity.
  - c. Sagebrush treatments would provide existing and future sage grouse habitat by meet guidelines in Connelly and others (2000).



- i. However, the percent of early seral age class has exceeded the recommended 20 percent. Treatment is not recommended until the the percent of early seral is below 20 percent and the percent of mature/old is higher.

## Data gaps and additional information needs

1. Aspen and Sagebrush conditions and extent within the watershed.
2. Sage grouse use and extent within the watershed.

## Opportunities/Recommendations

**Canada lynx** (*Lynx canadensis*) linkage can be maintained when early seral vegetation communities are not hindered from recovering due to major soil disturbance immediately after disturbance. Mining and road building would be the larger contributors but prey would continue to be available in adjacent habitats within the large linkage territory.

**Gray wolf** (*Canis lupus*) population levels can be maintained by following Idaho Management Plans. No additional recommendations are required.

**Townsend's (Western) big-eared bat** (*Corynorhinus townsendii*) populations would be maintained by following CNF RFP S&Gs (bats and snags). Installing additional artificial caves would increase habitat.

**Wolverine** (*Gulo gulo*) populations would be maintained by following CNF RFP S&Gs.

**Bald eagle** (*Haliaeetus leucocephalus*) populations would be maintained by following CNF RFP S&Gs and the 2007 Bald Eagle Management Guidelines. Protection of suitable large potential nest trees within view of Blackfoot River is recommended. If a nest is established, reducing human disturbance near the nest in the spring and summer would be required.

**Northern goshawk** (*Accipiter gentilis*) Maintaining a diversity of forest seral stages will provide old forest habitat in the long term as outlined in the CNF RFP.

**Columbian sharp-tailed grouse** (*Tympanuchus phasianellus columbianus*) Mountain brush is in a variety of age classed and meeting wildlife needs. In the future, disturbance (of no more than 20 percent of available winter forage at any one time) would provide early seral stands and improve the age and structure diversity of these stands. Retaining CRP lands that provide the most benefit to wildlife; specifically sharp-tailed grouse should be supported.

**Greater sage-grouse** (*Centrocercus urophasianus*) sagebrush habitat needs to be inventoried in the watershed before any treatments are recommended. Due to the high percent of early seral sagebrush, surveys need to be conducted before any future treatments are needed. These treatments cannot exceed the 20 percent early seral

threshold guideline recommended by Connelly et al. (2000). Until the inventory is completed, any wildfires in sagebrush should be controlled. Any loss of existing stands of sagebrush would limit the ability to treat sagebrush with higher canopy cover in the future while staying within the allowed 20 percent threshold. New, better, and more extensive data on sagebrush conditions for the watershed may allow for more treatments or may validate a need to exclude treatments for a longer period of time.

**Great gray owl** (*Strix nebulosa*) meeting CNF the 40 percent mature/old forest within 1,600 acre guideline especially in lodgepole pine should meet the habitat needs of this large owl.

**Flammulated owl** (*Otus flammeolus*) providing for snags and future large aspen and Douglas-fir and the protecting the nest stand should meet the habitat needs of this small owl.

**Boreal owl** (*Aegolius funereus*) meeting the CNF snag and 40 percent mature/old forest within 3,600 acre guideline especially in spruce/fir habitats should meet the needs of this cavity dependent owl.

**Three-toed woodpecker** (*Picoides tridactylus*) populations would be maintained long term with a diversity of forest seral stage that would provide a continuous supply of adequate habitat, and leaving recommended snags. Prescribed burning in forested habitat may increase local populations.

**Animal Damage Management** will continue to operate as outlined in the Idaho Wildlife Services Annual Manual Plan for the Caribou-Targhee National Forest. The forest will provide WS with livestock losses for each fiscal year. Forest activities must be conducted in compliance with the most recent APHIS-Wildlife Services (WS) Predator Damage Management direction.

**Dead and Down Material, Snag / Cavity Nesting Habitat** would be available for wildlife needs by following recommended guidelines for forested vegetation treatments.

**Amphibians:** Western boreal toad (*Bufo boreas*) and Northern leopard frog (*Rana pipiens*) future surveys would provide more information. Protecting wetland habitats and following riparian recommendations would help in the survival of this species. Amphibian habitats should be maintained when developing and modifying springs and wetlands.

**Big Game (elk & mule deer) & Winter Range** – Closing motorized routes identified in the Caribou Travel Plan Revisions and enforcement of travel restriction in the summer and winter will improve big game habitats. Increasing aspen treatments would help meet IDFG's Mule Deer Initiative. Following utilization guidelines in winter range would provide ungulate forage in designated winter ranges. Enforcing winter snowmobile restrictions would increase winter survival.

**Landbirds** will benefit by following RFP guidelines. To meet the intent of the **Migratory Bird Treaty Act and Executive Order 13186** activities should avoid practices that would result in “a take” of migratory birds by avoiding the peak breeding season for migratory birds found in southeast Idaho (IWJV 2005, Ritter 2000, USFWS 2002) occurs from the first of February 1 to mid September. The action should be consistent with the direction given in the USFWS Director’s Order No. 172 for the Fish and Wildlife Service. In this order, the USFWS Director stated: “Our objective for migratory bird management and conservation is to minimize the potential adverse effects of migratory bird take, with the goal of striving to eliminate take, while implementing our mission.” The USFWS Director also stated: “However, we recognize that direct or indirect actions taken by Service employees in the execution of their duties and activities as authorized by Congress may result in the take of migratory birds.”

**Idaho Sedge** (*Carex idahoensis*) would benefit proportionally to the number of streams at risk or nonfunctioning improved and the maintenance of streams that are functioning properly.

**Beaver** (*Castor canadensis*) – Increase aspen stands and increasing the diversity of seral stages of aspen forests would increase mature aspen stands in the long term. An increase in aspen would support beaver dam construction.

**American White Pelican** (*Pelecanus erythrorhynchos*) is a protected species impacting another species of importance. Efforts should be taken to assist IDFG in efforts to maintain pelican populations while protecting cutthroat trout.

### **Designated Wildlife Areas**

**Idaho Birding Trails, Diamond Creek Wildlife Viewing Area, Blackfoot Wildlife Management Area, and Blackfoot Reservoir Important Bird Area** are important designations within the watershed to increase public awareness of fish and wildlife. Signs should be maintained and opportunities to increase awareness should be taken advantage of. Information about these sites needs to be added to the web sites and updated when needed.

### **Health Advisory: Selenium in Elk Meat**

Water sampling should continue to determine if the risks of selenium toxicity from consuming wild game in or near the Blackfoot watershed has increased.

## **6.6 Human Uses**

### **Phosphate Mining**

- Establish an Interagency/Industry Cooperative to share environmental data related to phosphate mining among mines sites and across regulatory programs (Minerals Administration, CERCLA, NEPA, Stormwater Pollution Plans, etc.).
  - Provide at least one individual to oversee and manage the Cooperative.

- Provide at least one individual to establish and maintain an environmental database (similar to the Smoky Canyon Mine Environmental Monitoring Program, but for all phosphate mines (active, inactive, proposed)).
- Work with agencies and industry to remediate and mitigate selenium loading to the Blackfoot River with the goal of delisting the river as impaired due to selenium.
- Perform a gain/loss survey for the Blackfoot River within the watershed boundaries to determine gaining reaches of the river which may be contributing selenium (and/or other contaminants) from phosphate mining activities. Identification of gaining reaches will aid in identification of appropriate remediation strategies and help prioritize cleanup efforts at phosphate mine sites.
- Conduct survey of haul roads on historic phosphate mines for existence and condition as a baseline strategy for reclamation.
- Identify the selenium source(s) for East Mill Creek and Angus Creek.

## Geology

Potential sites for developing interpretative information dealing with fossils, and possible public collecting areas can be reviewed and analyzed. Public fossil areas should be close to existing roads that receive at least some recreational use, where collecting can be done in a safe manner that does not compromise the need to protect significant fossil resources.

## Other Mineral Resources

Since the need for road surfacing materials is projected to remain at current or slightly higher levels, it would be advisable to look for suitable sources and evaluate them before they are needed. Such sources should be relatively close to existing roads, close to areas where future application may be needed, be in areas where extraction and possible storage could be done without excessive environmental concerns, and where these materials could be extracted safely.

Because there is an existing demand for landscaping type of materials (which is expected to increase in the near future), it would be advisable to perform an inventory of potential source areas that could possibly be used as “community” pits/sources. These sources should be close to existing roads if possible, in areas of low environmental sensitivity, and where safety concerns are not a big issue.

Future oil/gas exploration will be dependant on completion of a leasing analysis and industry interest in the area. Site specific NEPA will be required before any surface disturbance is allowed. Where or what that exploration or drilling might entail cannot be accurately predicted at this time, so no recommendations will be made at this time.

## **Transportation**

(Brought forward from the Road Analysis-Appendix XX)

### **Description of the problems and risks posed by the current road system.**

- Complete implementation and improve enforcement of the 2005 Revised Caribou NF Travel Plan. This includes an inventory of what has been completed and what needs to be accomplished, then closing roads and trails that were identified to be closed. Also includes signing the open road and trail system and educating the public.
- Correct or improve road/stream crossings to allow for aquatic organism passage. Many of these crossings were identified in the 2005 Aquatic Organism Passage Survey performed by the forest.
- Where practical, relocate roads away from streams and riparian areas to reduce impacts such as sedimentation to these streams from the road. If relocation is impractical, improve road drainage to reduce impacts.
- Identify any new access needs for timber management or mineral exploration and development.
- Identify any ROW needs across private or other state and federal lands to provide access to the forest for forest management activities including recreation.

### ***OPPORTUNITIES TO ADDRESS PROBLEMS OR CONCERNS***

#### **Aquatic Passage and Stream Function**

1. Replace the culvert at the FS Road 589 crossing of Slug Creek with a bottomless structure that has sufficient capacity.
2. Although the undersized, perched culvert at Stewart Creek was fixed, there is still some need for stabilizing the stream downstream of the crossing that had been impacted by the past culvert.
3. Replace culvert on the Flat Valley Road #50107 where it crosses Brown's Canyon Creek.
4. Assess the need to replace the culvert in the Slug Creek Road #50095 where it crosses Slug Creek.
5. Replace the bridge on the Diamond Creek Road #50102 near the Diamond Creek Campground to reduce stream restriction and improve stream function.
6. Replace the undersized culvert on the Trail Creek Road #50125 where it crosses Trail Creek below the forest boundary.

#### **Sediment reduction projects**

1. Relocate sections of the Sulphur Canyon (Johnson Creek) Road #50126 away from Johnson Creek. (Aspen Range TS)
2. The Lanes Creek Road #50139 encroaches upon Lanes Creek affecting sediment loads and riparian vegetation. Opportunities to relocate segments of this road should be investigated.
3. Improve drainage on Flat Valley Road #50107 and dispersed road along Brown's Canyon Creek. There are dispersed campsites encroaching on Brown Canyon Creek in the middle reach. The acceptable limits to motorized vehicles need to be defined at

these sites. Determine if unstable stream banks described in 1984 still need stabilization and, if so, stabilize.

4. Relocate segments of the Archery Road #50297 away from Trail Creek to decrease sedimentation.
5. Assess the impacts of dispersed camping in the areas east of the Trail Canyon Warming Shelter on the riparian areas along Trail Creek.
6. Review campground in Mill Creek drainage to determine if there is a need to move the campsites away from the stream. Survey upper Mill Creek for phosphate mining-related impacts that need to be addressed and take action.
7. Reduce the impacts of dust and surface erosion on the Blackfoot River Road #51095 through the Blackfoot Narrows by applying a dust abatement treatment such as magnesium chloride. Also consider paving this road segment.
8. Assess impacts of dispersed camping along the Diamond Creek Road #50102.

### **Timber Access**

1. New or improved access will be needed for the Aspen Range TS. This has been addressed in the Aspen Range EA and the Aspen Range Roads Analysis.

### **Mineral Access**

1. New access may be needed for exploration activities for the Dairy Syncline Lease.

### **Forest Access**

1. Resolve ROW access across private land on the Dave's Creek Road.
2. Acquire ROW access across private lands for the Lane's Creek Road.
3. Acquire FS ROW across state and private lands on the Johnson Creek Road 50126.

### **Road Maintenance**

1. Replace and extend the aggregate surfacing on the Flat Valley Road #50107.
2. Add aggregate surfacing to the Timber Creek Road #50110.

## **Range management**

On the Rasmussen valley and the Dry Valley Cattle Allotments the possibility of grazing cattle on the closed mine dumps needs to be explored. Currently some mine dumps are closed to grazing with cattle while others in close proximity are open to grazing.

The mine dumps are closed to grazing because of high concentrations of selenium found within those dumps. Those open to grazing were turned back to Forest Service management before the problem with selenium was recognized. The permittees who graze their livestock on these dumps do not believe that selenium is a significant threat to their livestock. These permittees have grazed their cattle on these dumps for many years and have had no problems.

If these dumps could be opened to grazing it would alleviate many of the problems caused by insufficient forage on these two allotments.

## **Recreation**

As a result of the trends in chapter 5, below find recommendation to improve watershed conditions and recreational experiences in the Upper Blackfoot Watershed Analysis area. These would compliment the accomplishment already taken as shown in Chapter 5.

### **Recommendations**

- Continue to close illegal motorized trails with debris barriers (large logs, rocks and dirt) in the analysis area.
- Ramp up law enforcement for the District during holiday weekends, and hunting season. Archery season in Diamond Creek has trended up wards and can be very congested the opening week.
- Create loops for dead end motorized trails in the Diamond Creek area. Trial # 128 and Trial # 127.
- Harden high use dispersed multiple trailer camping spots in the Bear Creek and surrounding area with gravel.
- Close unnecessary multiple roads around the Trail Canyon ponds near the warming hut. Provide improved access with a single maintainable location for dispersed camping and trail use.
- Continue to educate forest user by being involved with recreation groups.
- Update the Diamond Creek campground with graveled pull through sites able to accommodate large trailers. A tree spade could be used to transplant sapling sized trees to improve the existing campground with new sites.
- Complete a recreation assessment for the Diamond Creek area to include campgrounds, dispersed camping and facilities.
- Motorized trails that do not meet minimum RFP standards, overly difficult to maintain and are not feasible to mechanically maintain should be considered for realignment or closure.
- Realign three priority trails that will need relocation work to be in compliance with the RFP. Trails #088, #122 and #127.